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KNOBBE MARTENS OLSON & BEAR  
SIXTEENTH FLOOR  
620 NEWPORT CENTER DRIVE  
NEWPORT BEACH, CA 926608016

[REDACTED] EXAMINER

FOURSON III, GEORGE R

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Paper No. 28

Application Number: 09/037,945

Filing Date: March 10, 1998

Appellant(s): FAZAN ET AL.

MAILED

MAR 21 2003

GROUP 2800

Adeel S. Akhtar  
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/28/03.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) Status of Claims**

The statement of the status of the claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 1/28/03 has been entered.

**(5) Summary of Invention**

The summary of invention contained in the brief is correct.

**(6) Issues**

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: A. whether claims 1,2,4,14 and 17 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over German Patent 266885 (Germany '885);

B. whether claims 3,8,9,11,12 and 16 are properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Germany '885 and further in view of Marshall et al.

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**(7) Grouping of Claims**

The rejection of claims 1-4,8,9,11,12,14,16 and 17 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) ClaimsAppealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

Marshall, S. et al., "Dry Pressure Local Oxidation of Silicon for IC Isolation", Journal of the Electrochemical Society, vol. 122, no. 19 (Oct 1975), pp.1411-1412

266 885

Cattus et al

4-1989

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1,2,4,14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent 266885 (Germany '885).

Germany '885 discloses formation of a field oxide by oxidizing a silicon substrate in a first stage comprising water vapor at 1000°C and a second stage comprising oxygen at atmospheric pressure. The reference discloses that the inclusion of HCl and/or chlorocarbon gas is optional in the second stage through use of "preferably" (abstract), "can be" (translation, page 2, line 11 and translation, page 7, line 10) and disclosure of delay before introduction (translation, page 7, penultimate line). The reference discloses that the process is useful in MOS transistor production which by definition includes formation of a gate oxide. The reference discloses that the first stage of the oxidation enables the process to be performed in reduced time (abstract) and compares the two step process to an oxidation process in dry oxygen alone

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(page 8, first paragraph). The abstract contains a typographical error in the last sentence of the "Use/Advantage" in that "less thick" should be --less time-- in view of the disclosure of the thickness previously in the sentence.

It would have been within the scope of one of ordinary skill in the art to omit the first stage oxidation with the expectation that the disclosed concomitant advantages of such a step would not be obtained because, in view of the above pointed to disclosure, such a process would be useful to form an oxide isolation region although longer in duration. See MPEP 2144.04, II, A. The recitation of performing the process without forming nitride occlusions would be obtained by the process discussed above because the same materials would be treated in the same manner as in the instant invention. Note also that the reference indicates that Kooi ribbon, or nitride formed during the first stage when employed, is eliminated in the second stage which indicates that the second stage does not produce nitride inclusions.

Claims 3,8,9,11,12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germany '885 as applied to claims 1,2,4,14 and 17 above, and further in view of Marshall et al.

Germany '885 does not disclose oxidation at pressures greater than 5 atm or the temperature of performing the second stage. Marshall et al discloses the suitability of oxidation of silicon in oxygen at pressures of 140-500 atm and temperatures up to 880°C using a silicon nitride oxidation mask to produce field oxide regions. It would have been within the scope of one of ordinary skill in the art to combine the teachings of Germany '885 and Marshall et al to enable the oxidation step of Germany '885 to be performed at a lower temperature (Marshall, page 1411). The choice of the particular recited temperature for each step would have been a matter of routine optimization within the teachings of the references (see Marshall et al, page 2411, the paragraph bridging col.1 and col.2). Marshall et al compares the disclosed

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process to one using 1atm at 1200°C (col.1). In view of this disclosure and the statement at col.2 that a "more optimum set of conditions can obviously be chosen from available data", the choice of the particular recited pressure would have been a matter of routine optimization within the teachings of the reference. Claims 8-9 are drawn to a field oxide which would not be distinguished from the field oxide produced by such a process.

**(11) Response to Argument**

Appellant argues that the reference discloses disadvantages of omitting the wet oxidation stage and must instead disclose desirability. However, it is sufficient that the reference suggests that omission of the wet oxidation step would result in a process having utility which in this case is formation of a field oxide useful as an isolation region. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). Even a teaching away from a claimed invention does not render the invention patentable. See *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998), where the court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed." To further clarify, a prior art opinion that a claimed invention is not preferred for a particular

limited purpose, does not preclude utility of the invention for that or another purpose, or even preferability of the invention for another purpose.

Appellant argues that the reference must disclose elimination of the first oxidation step. However, this is not necessary. As discussed above, the reference suggests elimination of the step in disclosing the function of the step in the event that the disclosed function is not desired to be obtained and, as discussed above, in comparison to a process in which the step is eliminated. It is clear from the teachings of the reference that a useful field oxide would be produced by the second step alone although the process would be longer in duration. MPEP 2144.04(II)(A).

Appellant argues that there is no suggestion or motivation to omit the wet oxidation step of Germany '885. However, in view of the disclosed purpose of the wet oxidation step, namely shortening the time required to form a desired thickness of field oxide, it would have been within the scope of one of ordinary skill in the art to omit the step with the expectation that the disclosed concomitant advantage would not be obtained. See MPEP 2144.04, II, A.

Appellant argues that the references are improperly combined and that hindsight is employed. In response to Appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, all references relied on are directed to formation of field oxide by local oxidation of silicon and thus the teachings of Marshall et al are seen to reasonably pertinent to the teachings of Germany '885. In response to Appellant's argument that the examiner's conclusion of

obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



George Fourson  
Primary Examiner  
Art Unit 2823

Gfourson  
March 18, 2003

Conferees

Olik Chaudhuri 

Wael Fahmy 

KNOBBE MARTENS OLSON & BEAR  
SIXTEENTH FLOOR  
620 NEWPORT CENTER DRIVE  
NEWPORT BEACH, CA 92660-8016